



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Glassware—Continued.

- 2 cylinder graduates, 250 c. c.
- 2 cylinder graduates, 50 c. c.
- 2 cylinder graduates, 10 c. c.
- 2 cylinder glass stoppered, 50 c. c.
- 12 pipettes (Mohr's) graduated, 10 c. c. in $\frac{1}{10}$ c. c.
- 12 pipettes (Mohr's) graduated, 5 c. c. in $\frac{1}{10}$ c. c.
- 12 pipettes (Mohr's) graduated, 1 c. c. in $\frac{1}{100}$ c. c.
- 2 gross test tubes, thin wall, $\frac{3}{8}$ by 6 inches.
- 2 gross test tubes, culture, heavy wall, no lip, $\frac{3}{8}$ by 5 inches.
- 1 gross test tubes, medium wall, no lip, $\frac{1}{2}$ by 4 inches.
- 50 centrifuge tubes, no lip, 15 c. c.
- 6 glass funnels, 3 inches.
- 6 glass funnels, 6 inches.
- 3 glass funnels, ribbed, 6 inches.
- 2 nests beakers, usual form, 30 c. c. to 250 c. c.
- 6 flasks (Erlenmeyer) 250 c. c.
- 6 flasks (Erlenmeyer) 500 c. c.
- 6 flasks, round, flat bottom, 250 c. c.
- 6 flasks, round, flat bottom, 500 c. c.
- 6 flasks, round, flat bottom, 1,000 c. c.
- 2 washbottles, 1,000 c. c.
- 12 watch glasses, assorted, 3 to 6 inches.
- 6 gross microscope slides, medium ground, 3 by 1 inch.
- $\frac{1}{2}$ ounce cover glasses No. 1, $\frac{3}{4}$ inch.
- 2 pounds glass tubing, rods, assorted, 3 feet.
- 4 battery jars.
- 6 specimen jars (lightning), 1 pint.
- 25 petri dishes, 100 by 15 mm.
- 1 mortar and pestle (Wedgewood), 8 inches.
- 2 mortar glass pestles, 6 inches.
- $\frac{3}{4}$ pound solid glass beads.
- 9 Reagent bottles, glass stoppered, 125 c. c., labelled:
 - Sulphuric acid.
 - Nitric acid.
 - Hydrochloric acid.
 - Ammon. hydrox.
 - Alcohol.
 - Ether.
 - Sod. hydroxide.
 - Iodine solution.
- 6 Reagent bottles, plain.
- 12 dropping bottles, finger pipette, 30 c. c.

Glassware—Continued.

- 6 dropping reagent bottles, wide mouth.
- 4 glass plates, 6 by 8 inches.
- 1 glass alcohol lamp.
- Chemical supplies:
 - 9 pounds acid sulphuric, conc., c. p.
 - 9 pounds acid hydrochloric, conc., c. p.
 - 9 pounds acid nitric, conc., c. p.
 - 1 pound acid acetic, glacial.
 - 1 gallon alcohol, 95 per cent.
 - 2 pounds ether, (anesthetic).
 - 1 pound chloroform (anesthetic).
 - 1 liter ammon. hydroxide, conc.
 - $\frac{1}{2}$ liter xylol.
 - 1 liter sodium hydroxide (normal solution).
 - $\frac{1}{2}$ liter Benedict's cupric sulphate solution.
 - 100 c. c. Lugol's solution (iodine).
 - 1 pound phenol (cryst.).
 - 100 c. c. aniline oil.
 - 1 pound sodium bicarbonate.
 - 1 pound sodium chloride (table salt).
 - 1 pound hydroxide sticks.
 - $\frac{1}{2}$ pound meat extract.
 - 2 ounces bromine.
 - 250 gms. Fuchsin (acid).
 - 100 gms. methylene blue.
 - 100 gms. methyl blue.
 - 50 gms. gentian violet.
 - 50 gms. Bismarck brown.
 - 100 gms. cedar oil.
 - 1 tube Canada balsam.
 - 1 tube LePage's glue.
 - 10 gms. phenolphthalein.
 - 10 gms. potass. bichrom. (com.).
 - 500 filter paper, white, 4 inches.
 - 500 filter paper, white, 6 inches.
 - 250 filter paper, white, 8 inches.
 - 5 quires filter paper sheets, smooth, 20 by 20 inches.
 - 5 pounds glycerine (pure).
 - 1 pound peptone.¹
 - 1 pound agar.
 - 1 pound gelatine.
 - 1 pound paraffin.
 - 2 ounces vaseline.
 - 2 pounds cotton, cheap absorbent.
 - $\frac{1}{2}$ quire gummed paper.

In addition to the necessary diagnostic work such a laboratory is a real stimulus for the members of the staff, among whom the dull routine tends to stagnation without opportunities for study.

THE TREATMENT OF SURGICAL TUBERCULOSIS.

By R. W. HART, Passed Assistant Surgeon, United States Public Health Service.

External or surgical tuberculosis consists of tuberculosis of bones and joints, glandular tissues, genito-urinary tract, peritoneum, gastro-intestinal tract, and perirectal tissues.

The proper treatment of surgical tuberculosis requires a judicious combination of all the measures commonly employed in the treatment of pulmonary tuberculosis, as well as immobilization of the

¹Culture media may be purchased ready to prepare.

part, where possible, by the free use of casts and similar appliances, heliotherapy, and, more rarely, active surgical intervention.

A common type of surgical tuberculosis is that involving bones and joints, such as tuberculosis of the spine (Pott's disease), or tuberculous disease of the epiphyses of long bones. There is a marked difference between tuberculous osteomyelitis and osteomyelitis epiphyses due to pyogenic bacteria. Under the influence of rest and immobilization, tuberculous processes of bone tend to recover, whereas osteomyelitis due to septic bacteria tends rather to progress. For this reason the treatment of these two types of osteomyelitis is radically different.

Tuberculous abscesses from diseased bone follow fascial planes and may gravitate for a considerable distance from the original focus of disease. The most common illustration of this is the gravitation abscess in low Pott's disease, which commonly points in the thigh and is known as a psoas abscess. The uninfected cold abscess tends to recover under otherwise favorable conditions.

The dictates of good surgery in tuberculosis demand that no wound of entrance be made which, by any possibility, might lead to a secondary infection by pyogenic organisms. When a tuberculous abscess forms, it should never be incised, but rather, if any interference is indicated, its contents should be aspirated by means of a very carefully sterilized fine-gauge needle, through sound tissue. The needle should enter the abscess well to one side of the diseased process and should travel through from 1 to 2 inches of sound tissue before entering the abscess cavity.

The relief attendant upon aspiration is fully as great as that attendant upon incision, and has the additional advantage of not opening a portal for infection, which, if it should occur, gives rise to further destruction of tissue even under conditions of strictest immobilization.

Aspiration may be necessary as frequently as once a week over some period of time. Usually, two or three successive aspirations are sufficient if the parts are properly immobilized. The removal of pus may be followed by the injection of small amounts of medicaments, if desired. When a tuberculous abscess from Pott's disease forms in the loin, it may be treated in the same way; namely, by aspiration alone or by aspiration and injection. Hips and smaller joints may be treated by this method, though ordinarily they do not require aspiration, as the quantity of pus formed is usually slight and will become organized if perfect immobilization is carried out.

Aspiration alone, in these cases, is not sufficient. As soon as bone tuberculosis is diagnosed, the affected part should be carefully immobilized. In the case of the spine, this is best carried out either by means of a plaster jacket put on with the patient in the erect posture,

with suspension from the axilla and head, or by means of a cast put on with the patient in a prone position. Casts for spinal disease should be of sufficient length to surely immobilize the affected part. Where abscess formation has taken place, a window should be left in the cast, sufficiently large, that aspiration may be carried out as indicated in the foregoing.

During the acute stage of the tuberculous process, rest in bed is imperative, and in involvement of joints of the lower extremities, combined traction and immobilization may be necessary to reduce the pain. The points of greatest importance to remember in the treatment of bone tuberculosis are, first, that the introduction of secondary infection invariably leads to a much more serious condition than the tuberculous process alone, and every precaution must be taken to prevent the ingress of septic organisms; and secondly, that recovery is due to the same general processes of repair involved in recovery from pulmonary tuberculosis.

Immobilization is best accomplished by means of plaster casts, although in the later stages sufficient immobilization can be secured by means of mechanical braces and appliances. The cure of these cases presages a period of constant treatment and observation of from six months to two years.

In the case of those unfortunates having fistula, two courses are open—one is the complete excision of tuberculous tissue where possible, with the consequent granulation of the sinus; the other is the attempted sterilization of the sinus by means of chemicals. The greatest aseptic care is necessary in dressing these fistulæ. Direct sunlight exercises a very beneficial effect on tuberculous fistulæ.

Where the tuberculous involvement is comparatively slight, it is occasionally permissible, even without sinus formation, to completely excise tuberculous tissue. As, for instance, in tuberculosis of the astragalus, involving this bone alone, it may be permissible to remove completely a part or the whole of the astragalus. This is occasionally successfully done in cases involving a joint as large as the hip. The conservative treatment of bone tuberculosis—namely, that treatment consisting of long-continued immobilization—together with careful general care, will give a greater percentage of good results than the more radical treatment, except in selected cases in the hands of those extraordinarily adroit in operative procedures.

Of almost equal importance in the treatment, is carefully conducted heliotherapy, either by means of natural sunlight or by means of artificial sun lamps of the mercury-vapor type. The value of direct sunlight in cases of bone tuberculosis can hardly be overestimated. The treatment consists of gradual exposure to direct sunlight, starting by exposure of the feet, later the legs and thighs,

and still later the abdomen and chest. This treatment is carried out regardless of the site of the lesion.

The dietetic treatment of bone tuberculosis is that of tuberculosis of any other part of the body. In addition to the general care and the specific methods of treatment above outlined, small doses of tuberculin have given beneficial results in certain cases. This dangerous agent should, however, be employed only by one thoroughly versed in its use.

The treatment of glandular tuberculosis consists either in puncture and injection or in excision of the involved lymph structures. Excision, where done, must be sufficiently radical to remove all the tissue involved. Incision of tuberculous glands should rarely be done. In those cases where an immediate rupture of the abscess is feared and where excision can not be done, aspiration is indicated.

The two main foci of tuberculosis in the genito-urinary tract are the kidneys and testicles. Since tuberculosis of the kidney is usually unilateral, the recognized method of treatment is removal of the involved kidney. In early tuberculosis of the testicles, the part primarily involved is the epididymis. From here the process extends along the cord and may eventually involve the vesicles, prostate, and bladder. In the early stages of testicular tuberculosis, involving only the epididymis and vas, excision of the epididymis and vas should be done and should be sufficiently extensive to make certain the removal of all involved tissue. Where the testicle itself is involved and its removal has been decided upon, a mere amputation of the cord at the external ring is not sufficient. The dissection of the vas must be carried well through the internal ring. Amputation of the cord at the external ring frequently gives rise to a tuberculous stump.

Tuberculosis of the peritoneum is benefited but little by surgical procedure, although, occasionally, startlingly beneficial results have followed a laparotomy with exposure of the involved peritoneum to the air. The treatment in general, however, is that of pulmonary tuberculosis plus vigorous heliotherapy.

Tuberculous fistula involving the perirectal tissue is quite common and is seen in approximately 10 per cent of all cases of pulmonary tuberculosis. There are two methods of treatment of these fistulae, incision and excision. Incision with a thorough curettement of the fistulous tract, followed by daily dressing, will usually give satisfactory results. For the skillful operator thoroughly versed in the anatomy of the parts, complete excision of the fistula gives a higher percentage of cures in a lesser period of time.

It is impossible in a brief note of this sort to more than indicate the treatment of surgical tuberculosis. However, the above outline should constitute in a general way the method of treatment of surgical tuberculosis in United States Public Health Service hospitals.